

ROTENONE

BIOLOGY JOB SHEET TX-10

JUNE 1995

Rotenone is a pesticide registered by the Environmental Protection Agency for use as an insecticide or piscicide (fish toxicant). Insecticide products contain 1% to 2% rotenone. Fish toxicants contain 5% or more rotenone. A pesticide applicator's license is required to purchase 5% rotenone in large amounts.

Rotenone constricts blood vessels in a fish's gills, reducing oxygen exchange between water and a fish's blood supply. Suffocating fish begin to swim erratically, rising to the water surface, often flopping out of the water. Some species begin reacting to rotenone within 10 minutes after exposure. Species that are difficult to kill may take a day or two to die.

Lung-breathing animals, except possibly swine, are unaffected by rotenone. Snakes and turtles will not be killed; in fact, they will feast on dead and dying fish and tadpoles. Product labels usually caution against human consumption of fish killed by rotenone.

Formulations - rotenone may be purchased in liquid and powdered forms, but is much more readily available in powdered form.

Rates of Application - Some fish species are more difficult to kill than others. For example, crappie (white perch) and green sunfish (sun perch, goggleeye) are more sensitive to rotenone than bullheads (mudcat, polywogs) and gar.

1. Sunfish, crappie, bass, channel catfish, shad, minnows
 - a. Liquid - 3 pints of 5% rotenone per acre-foot
 - b. Powder - 3 pounds of 5% rotenone per acre-foot
2. Bullhead, gar, carp, suckers, bowfin
 - a. Liquid - 6 pints of 5% rotenone per acre-foot
 - b. Powder - 6 pounds of 5% rotenone per acre-foot

Time of Application - Water should be as warm as possible, at least 70 degrees Fahrenheit. July, August, and September are the best months for applying.

Application Procedures

1. Water should be as shallow as possible. Many ponds drawdown naturally by mid to late summer. Water depths may need to be further reduced to a maximum depth of 5 feet.
2. Mix each gallon of 5% rotenone with 25 gallons of water and apply evenly over the pond surface. If any water is deeper than 5 feet, sink some of the mixture to the pond bottom in a weighted hose or other container. Apply extra amounts to "moss" and aquatic weed beds.
3. Powdered rotenone is difficult to mix with water. An emulsifier, such as liquid detergent, makes the task less difficult. When maximum water depths are less than 5 feet, mix each pound of 5% rotenone with 5 gallons of water and apply slurry in same manner as liquid rotenone solution. When maximum water depths exceed 5 feet, add water sparingly to a portion of the powdered rotenone until a consistency of "dough" or "mud" is obtained. When applied to deep water, this mixture will sink to the bottom

Restocking - Pond may be restocked in 2 weeks. To be sure that the rotenone is detoxified, place a bucket of minnows or sunfish in the pond overnight. If they survive, the pond is ready to restock.

Helpful Hints

1. Rotenone loses strength fairly rapidly. Old rotenone may no longer be 5% in strength. Always use fresh rotenone. Material that has obviously been on the shelf for a long time should be avoided. Inquire of the sales person how long the rotenone has been in stock and insist on fresh material.
2. Fish affected by rotenone can be saved. Locate containers (tubs, barrels, etc.) of untreated water nearby. Use dip nets to capture fish as soon as possible after they surface and transfer to containers of untreated water. The longer a fish is exposed to rotenone, the less likely it will recover.